

Appln No. 10/657,836

Amdt date June 2, 2004

Reply to Office action of March 22, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus comprising an optical fiber, ~~[transmission medium optically coupled to]~~ a photodetector disposed adjacent said fiber, ~~[in an optical coupling region]~~ and an optical thick film disposed on said photodetector ~~[in said optical coupling region]~~ and having a ~~[thick film]~~ refractive index between a first refractive index of air and a second refractive index of material for an exposed surface of said photodetector, wherein said optical fiber has a smooth light emitting surface region and said optical thick film extends between said smooth light emitting surface region and the exposed surface of said photodetector.

2. (Currently Amended) The apparatus as in claim 1, wherein said photodetector includes an active area and said optical ~~[transmission medium]~~ fiber includes on the smooth light emitting surface region a light delivery location where light exits said optical ~~[transmission medium]~~ fiber ~~[, said optical coupling region including]~~ toward said active area ~~[and said light delivery location]~~.

3. (Canceled).

4. (Currently Amended) The apparatus as in ~~[claim 3]~~ claim 1, wherein said material comprises silicon nitride.

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5. (Currently Amended) The apparatus as in [~~claim—3~~] claim 1, wherein said [~~facing~~] exposed surface includes a surface of an active area of said photodetector.

6. (Currently Amended) The apparatus as in [~~claim—3~~] claim 1, wherein said photodetector comprises a substrate with an active area on a first surface of said substrate and along an optical path of light coupled from said optical [~~transmission medium~~] fiber to said photodetector, and said [~~facing~~] exposed surface is an opposed surface of said substrate.

7. (Canceled).

8. (Currently Amended) The apparatus as in claim 1, further comprising an optical source that causes light having a [~~wavelength~~] wavelength of one of 1310nm and 1550nm to propagate through said optical [~~transmission medium~~] fiber.

9. (Canceled).

10. (Currently Amended) The apparatus as in [~~claim—9~~] claim 1, wherein light exits said optical fiber at the smooth light emitting surface region formed at an end face of said optical fiber.

11. (Currently Amended) The apparatus as in [~~claim—9~~] claim 1, wherein light exits said optical fiber at a light delivery location formed on the smooth light emitting surface region of a sidewall of said optical fiber.

12. (Original) The apparatus as in claim 1, wherein said optical thick film is formed of silicone.

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13. (Currently Amended) The apparatus as in claim 1, wherein said ~~[thick film]~~ refractive index of the optical thick film lies within a range of about 1.34 to 1.45.

14. (Canceled).

15. (Original) The apparatus as in claim 1, wherein said optical thick film includes a thickness within the range of 10 - 30 microns.

16. (Original) The apparatus as in claim 1, wherein said second refractive index lies within one of a range of about 3.0 to 3.5 and a range of about 1.8 to 2.2.

17. (Original) The apparatus as in claim 1, wherein said optical thick film reduces an amount of light reflected between air and said photodetector.

18. (Currently Amended) An apparatus comprising an optical ~~[transmission medium]~~ fiber having a smooth end face, ~~[optically coupled to]~~ a photodetector disposed adjacent said fiber, ~~[in an optical coupling region]~~ and ~~[a discrete]~~ an optical thick film formed on said photodetector and extending between the photodetector and the smooth end face of the optical fiber, said ~~[discrete]~~ optical thick film increasing an amount of light coupled from said optical ~~[transmission medium]~~ fiber to said photodetector when light propagates in said optical ~~[transmission medium]~~ fiber.

19. (Currently Amended) An apparatus comprising an optical ~~[transmission medium]~~ fiber having a smooth light emitting surface region, ~~[optically coupled to]~~ a photodetector adjacent

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said optical fiber~~[in an optical coupling region that includes a smooth surface of said optical transmission medium]~~, and an optical thick film coating ~~[interposed between]~~ extending from said photodetector to said smooth light emitting surface region~~[and said photodetector]~~.

20. (Canceled).

21. (Currently Amended) The apparatus as in ~~[claim 20]~~ claim 19, wherein ~~[said optical transmission medium comprises an optical fiber and]~~ said smooth light emitting surface region is on ~~[comprises]~~ a sidewall of said optical fiber.

22. (Original) The apparatus as in claim 19, wherein said smooth surface has a surface roughness no greater than 0.1 microns R_a .

23. (Currently Amended) The apparatus as in claim 19, wherein said optical thick film coating has a refractive index of at least one of between a first refractive index of air and a second refractive index of said optical ~~[transmission medium]~~ fiber and between said first refractive index and a third refractive index of material for an exposed surface of said photodetector.

24. (Original) The apparatus as in claim 19, wherein said optical thick film coating comprises silicone.

25. (Currently Amended) A method for increasing optical coupling efficiency between an optical fiber and a photodetector, comprising:

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providing an optical fiber having a smooth light emitting surface region and a photodetector;

optically coupling the smooth light emitting surface region of said optical fiber to said photodetector [~~in an optical coupling region~~]; and

disposing a coating on said photodetector [~~in said optical coupling region~~] such that the coating extends from the photodetector to the smooth light emitting surface region, said coating having a coating refractive index between a first refractive index of air and a second refractive index of material for a surface of said photodetector upon which said coating is disposed.

26. (Canceled).

27. (Original) The method as in claim 25, wherein said disposing includes forming said coating of silicone.

28. (Currently Amended) The method as in claim 25, further comprising polishing an end face of said optical fiber to form the smooth light emitting surface region, and wherein said disposing further includes forming said coating to extend continuously between [an] the smooth light emitting surface region on the end face of said optical fiber and said photodetector.

29. (Currently Amended) The method as in claim 25, [~~further comprising polishing an end face~~] wherein an end face of said optical fiber [and causing] has been polished to cause light propagating through said optical fiber to exit through the smooth light emitting surface region formed on a sidewall of said optical fiber, and wherein said disposing further includes

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forming said coating to extend continuously between the smooth light emitting surface region on said sidewall and said photodetector.

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Amendments to the Drawings:

The attached sheet of drawings for FIGs. 1-5 are filed in response to the objection to the drawings. The proposed drawing sheets, which includes FIGs. 1-5, replace the original sheets including FIGs. 1-5.

Attachment: Replacement Sheets for FIGs. 1-5.